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ELECTRICAL ENGINEERING RESEARCH LABORATORY
THE UNIVERSITY OF TEXAS

Memorandum No. 14

30 March 1956

SUPPLEMENT TO EERL REPORT NO. 75

Reports, Technical Publications,
Papers and Theses from April 1955-
March 1956

31

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Prepared Under Office of Naval Research Contract Nonr 375(01)
NR 371 032

I. REPORTS TO SPONSORING AGENCIES

A. U. S. Navy

1. Office of Naval Research - Contracts N5ori-136; N6onr 266; Nonr 375(01)
P.O. I T.O. I and II

Technical Reports

No.	Title	Author or Authors	Contract Number
76	"Measurement and Analysis of Instantaneous Height-Gain Curves at 8.6 Millimeters Over Rough Surfaces," 20 April 1955	A. W. Straiton C. W. Tolbert	Nonr 375(01)
77	"Radio Propagation Measurements Between Pikes Peak and Mount Evans at a Wavelength of 8.6 Millimeters," 30 September 1955	C. W. Tolbert A. W. Straiton	Nonr 375(01)
78	"Amplitude and Phase Difference Fluctuations of 8.6 Millimeter and 3.2 Centimeter Radio Waves on Line-of-Sight Paths," 16 March 1956	C. W. Tolbert B. M. Fannin A. W. Straiton	Nonr 375(01)
79	"Circuit Diagrams and Operational Data for the Transform Computer," 19 March 1956	F. E. Brooks, Jr. H. W. Smith G. Hopkins, Jr.	Nonr 375(01)
80	"A Standard Deviation Computer," 30 March 1956	F. E. Brooks, Jr H. W. Smith R. M. McClure	Nonr 375(01)
1770-1	"Final Engineering Report on the Naval Research Laboratory Airborne Microwave Refractometer,"	C. M. Crain	Nonr 1770(01)

2. Bureau of Ships - Contracts NObsr 63052; NObsr 64126

8-03	"Shipboard Radar System for Finding Altitude of Aircraft in Landing Altitude," Conf., Title Unclassified, 31 December 1955	F. E. Brooks, Jr W. C. Dusterhoeft D. R. Ziemer C. L. Pettijohn	NObsr 63052
8-04	"Ratio Operation of the Brooks Antenna System," Conf., Title Unclassified, 30 March 1956	F. E. Brooks, Jr	NObsr 64126

No.	Title	Author or Authors	Contract Number
B. <u>U.S. Air Force</u>			
2. Wright Air Development Center - Contracts AF 18(600)-113; AF 33(616)-2423			
5-06	"A Preliminary Synoptic Analysis of the Atmospheric Refractive Index Climatology of Alaska," 28 February 1955	V. E. Moyer	AF 18(600)-113
5-07	"Final Report on Items I-XII Contract AF 18(600)-113," 28 February 1955		AF 18(600)-113
5-08	"Microwave Refractometer Measurements of the Dielectric Properties of Ionized Neon," 19 September 1955	G. E. Deakins C. M. Crain	AF 18(600)-113 S5(53-986)
5-09	"Final Engineering Report on the Type III (Sensitive Scale-Fluctuation) Refractometer," 31 October 1955	C. M. Crain	AF 33(616)-2423
5-10	"Measurement of the Effects of the Radiation from a Nuclear Reactor on the Index of Refraction of Atmospheric Air and Argon," 31 October 1955, Secret, Title Unclassified	C. M. Crain	AF 18(600)-113 S5(53-986)
5-11	"Airborne Measurements of Atmospheric Refractive C.M. Crain Index Microvariations up to 20,000 Feet MSL Over Southeastern Colorado," 15 November 1955		AF 33(616)-2423
5-12	"Annual Report 15 February 1955-15 February 1956," Secret, Title Unclassified, 15 February 1956		AF 33(616)-2842

3. Cambridge Research Center

a. Electronics Research Division - Contract AF 19(604)-494

6-08	"Phase Difference Variations in 9350 Megacycle Radio Signals Arriving at Spaced Antennas," 31 May 1955, AFPCRC-TN-55-364	A. P. Deam B. M. Fannin	AF 19(604)-494
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No.	Title	Author or Authors	Contract Number
6-09	"Meteorological Analysis of Selected Offshore California Refractive Index Profiles," 30 June 1955 AFCRC-TN-55-365	V. E. Moyer	AF 19(604)-494
6-10	"The Requirement for Refractive Index Observations in Radar Evaluation Programs," 15 July 1955, AFCRC-TN-55-390	D. F. Metcalf	AF 19(604)-494
6-11	"Phase Difference Variations in 9350 Megacycle Radio Signals Arriving at Spaced Antennas (Pikes Peak to Garden-of-the-Gods), 15 October 1955, AFCRC-TN-55-771	A. P. Deam	AF 19(604)-494
6-12	"Characteristics of Tropospheric Refractive Index Fluctuations Observed During a 1955 Measurement Program in the Colorado and Florida Area," 31 October 1955, AFCRC-TN-55-772	C. M. Crain H. Chapman	AF 19(604)-494
6-13	"Line-of-Sight Propagation in a Randomly Inhomogeneous Medium," 31 December 1955, AFCRC-TN-55-969	B. M. Fannin	AF 19(604)-494 and DA-23-072-ORD-763

C. U.S. Army

Redstone Arsenal - Contract DA-23-072-ORD-763

7-04	"Phase Difference Variations in 9350 Megacycle Radio Signals Arriving at Spaced Antennas," 31 May 1955	A. P. Deam B. M. Fannin	DA-23-072-ORD-763
7-05	"Side Lobe Interference in Radar Position in Space Determination," 15 July 1955, Confidential, Title Unclassified	A. H. LaGrone	DA-23-072-ORD-763
7-06	"Phase Difference Variations in 9350 Megacycle Radio Signals Arriving at Spaced Antennas (Pikes Peak to Garden-of-the-Gods)," 15 October 1955	A. P. Deam	DA-23-072-ORD-763
7-07	"Further Studies of the Variations of Radar Elevation Angle Errors for Selected U. S. Locations," 31 October 1955	B. M. Fannin K. H. Jehn	DA-23-072-ORD-763
7-08	"Line-of-Sight Propagation in a Randomly Inhomogeneous Medium," 31 December 1955	B. M. Fannin	DA-23-072-ORD-763 and AF 19(604)-494

II. TECHNICAL PUBLICATIONS

Title	Author or Authors	Place and Date Presented
"Phase-Difference Variations in 9350 Megacycle Radio Signals Arriving at Spaced Antennas,"	A. P. Deam B. M. Fannin	<u>Proceedings of the Institute of Radio Engineers. Vol. 43 No. 10, pp. 1402-1404 October 1955</u>
"Survey of Airborne Microwave Refractometer Measurements"	C. M. Crain	<u>Proceedings of the Institute of Radio Engineers, Vol. 43 No. 10, pp. 1405- 1411, October 1955</u>

III. PAPERS PRESENTED BY STAFF MEMBERS

"Summary of Refractive Index Fluctuation and Profile Measurements Over Southeastern Colorado in Aug. 1954"	C. M. Crain C. A. Hines	International Radio Scientific Union - Institute of Radio Engineers - May 2, 3, 4, 5, 1955, Washington D.C.
"Propagation Measurements at 4.3 Millimeters,"	A. W. Straiton C. W. Tolbert	Ditto
"On the Problem of Determining the Spatial Distribution of Small Scale Atmospheric Phenomena from Point Measurements with Application to Field Radio Meteorology"	J. R. Gerhardt	American Meteorological Society- American Geophysical Union, May 2-6, 1955, Washington, D.C.
"Measurement and Analysis of Instantaneous Radio Height Gain Curves at 8.6 mm Over Rough Surfaces"	A. W. Straiton C. W. Tolbert	Symposium on Electromagnetic Wave Theory- International Radio Scientific Union - University of Michigan, June 20-25, 1955
"Recent Measurements of Tropospheric Refractive Index and Refractive Index Gradient Fluctuations"	J. R. Gerhardt C. M. Crain	Fifth Weather Radar Conference, Asbury Park, New Jersey, September 12-15, 1955

Title	Author or Authors	Place and Date Presented
"Preliminary Synoptic Analyses of the Atmospheric Index Climatology of Alaska and the Western U. S. Coastal Waters Areas"	V. E. Moyer	Fifth Weather Radar Conference, Asbury Park, New Jersey, September 12-15, 1955
"Radar Elevation Angle Errors in Representative Air Masses"	B. M. Fannin K. H. Jehn	American Meteorolog- ical Society, New York, N.Y., 23-26 January 1956

IV. THESES

Master of Science in Electrical Engineering, June 1955

51. Charles Dawes Tipton: "An Electroformed Continuous Phase Shifter for 8.6 Millimeters," supervised by A. W. Straiton, The University of Texas.

Doctor of Philosophy in Electrical Engineering, June 1955

52. Floyd Lee Cash: "Absorption of Microwaves by Atmospheric Ozone," Supervised by A. W. Straiton, The University of Texas.
53. John Paul German: "The Effects of the Physical Parameters on the Band Width of a Folded Dipole," supervised by F. E. Brooks, Jr., The University of Texas.

Doctor of Philosophy in Electrical Engineering, August 1955

54. Glenn E. Deakins: "Studies of the Dielectric Properties of Ionized Gases," Supervised by C. M. Brain, The University of Texas.

Master of Science in Electrical Engineering, August 1955

55. Thomas P. Cerney: "An Eight Amplifier Analogue Computer and Applications," supervised by H. W. Smith, The University of Texas.
56. Albert N. McQuown, Jr.: "An L-Band Continuous Phase Shifter," supervised by F. E. Brooks, Jr., The University of Texas.